

Page 4, line 8: delete "adjacent to" and insert therefor - -the ends of - -

Page 4, line 13: after "light assembly 12" insert - -, the body, internals and function thereof being described in the referenced U.S. patent number 5,437,066, - -

Page 4, line 15: delete "not shown" and insert therefor - -Fig. 4 - -

Page 4, line 26: after "42" insert - -L- -; after "44" insert - -L- -

Page 4, line 26: after "44" insert - -L and 44R- -

Page 4, line 27: delete "opposed inner" & insert therefor - -horizontally opposed cavity end - -

Page 4, line 28 after "42" insert - -L and 42R- -

Page 5, line 1: after "42" insert - -L and 42R - -

Page 5, line 2: after "28" insert - -L and 28R - -

Page 5, line 3: delete "44" and insert therefor - -48 - -

Page 5, line 3: after "30" insert - -L and R - -

Page 5, line 8: after "28" insert - -L and 28R - -

Page 5, line 8: after "42" insert - -L and 42R, so as- -

Page 5, line 11: delete "significantly" and insert therefor - -resiliently- -

Page 5, line 12: after "28" insert - -L and 28R - -

Page 5, line 13: after "42" insert - -L and 42R, where residual compressive forces will hold it in place. Alternatively, if recesses 42L and 42R were protrusions and protrusions 28L and 28R were recesses, light assembly 12 would be retained in the same manner.- -

Page 5, line 18: after "42" insert - -L and 42R- -

IN THE CLAIMS:

Please cancel claims 5, 9, 20 and 24 and amend the remaining as follows

positive mechanical forces assure retention and alignment of the light assembly body and yet allow easy removal for battery replacement

Various forms of light assembly body protrusions and cavity recesses may be used and, in alternative embodiments, recesses may be provided in the light assembly ends for engagement with mating protrusions on the cavity end walls. In any case, the length of the light assembly is resiliently reduced by compression ~~[compressed]~~ to allow insertion of the body and engagement of the bumps and dimples. An "O" ring end cap seal at each end of the tubular body, with the "O" ring being axially compressed between the housing end and the end cap, provides the required resilience and spring travel. In an alternative embodiment, one or both end protrusions may be two piece, telescoping mechanisms, spring loaded to extend.

DESCRIPTION OF THE DRAWINGS

The aforementioned and other objects and features of the invention will be apparent from the following detailed description of specific embodiments thereof, when read in conjunction with the accompanying drawings, in which:

FIGURE 1 is a view of an installation of a preferred embodiment of the present inventions;

FIGURE 2 is a section view of the mounting of the preferred embodiment of Fig. 1, taken along section line 2-2;

FIGURE 3 is a section view taken along section line 3-3 of Figure 1;

FIGURE 4 is a longitudinal section view taken along section line ~~[3-3]~~ 4-4 of Figure 1;

FIGURE 5 is a cross-section of the "O" ring sealing arrangement of the present inventions, showing compressed and installed length conditions; and

FIGURE 6 is a detail view of an alternative telescoping protrusion.

DETAILED DESCRIPTION OF THE DRAWINGS

The present inventions are described in the following by referring to drawings of examples of how the inventions can be made and used. In these drawings, reference characters are used throughout the views to indicate like or corresponding parts. The embodiments shown and described herein are exemplary. Many details are well known in the art, and as such are neither shown nor described.

FIGURES 1-4 show preferred embodiment 10 of the present invention. Here, light assembly 12 is seen to be mounted in cavity 14 at the rear edge of toilet seat ring 16. It is also shown that toilet seat ring hinge lugs 18L and 18R are ~~adjacent to~~ the ends of cavity 14. Toilet seat mounting lugs 20 L and 20R are affixed to toilet bowl 22 by conventional means, well known to all skilled in the toilet seat arts. Toilet seat lid hinge lugs 24L and 24R are located to the outside of toilet seat mounting lugs 20L and 20R so as to provide a separate hinged attachment for toilet seat lid 26.

FIGURE 2, taken at section arrows 2-2 of Fig. 1, shows light assembly 12, the body, internals and function thereof being described in the referenced U.S. patent number 5,437,066, as it appears when installed in cavity 14. Here, protrusion 28L and 29, which extends into recess 42L (~~not shown~~ Fig. 4), are seen as a cross-sectioned portion of light assembly end cap 30L. End cap extensions 32 and 34 contact the lateral wall surface 36 of cavity 14 so as to hold a fixed angular relationship between light assembly 12 and toilet seat ring 16. In an alternative arrangement, shown in this same view, blocking lugs 38 and 40, extensions of lateral wall surface 36, contact the exterior of light assembly 12 to achieve the same result.

FIGURE 3, taken at section arrows 3-3 of Fig. 1, also shows the rear edge of toilet seat ring 16 and cavity 14, where a typical contour of lateral wall surface 36 is seen. Protrusion 28R, which extends into recess 42R, is shown in cross-section.

FIGURE 4, taken at section arrows 4-4 of Fig. 1, shows the left hand portion of the longitudinal section taken through the pivot axis of toilet seat ring 16 and lid 26. Here, recess 42L is seen to be the open end of the hole for hinge pin 44L. Hinge pins 44L and 44R are set with their external ends well below the horizontally opposed cavity end ~~opposed inner~~ surfaces 45 of hinge lugs 18L (and 18R) so as to create recesses 42L and 42R. While this is a convenient artifice, equivalent recesses could also be made separately of the hinge holes, at another location on the hinge inner surfaces 45.

FIGURE 5 is a longitudinal view, taken through the center of recesses 42L and 42R and protrusions 28L and 28R. In the upper half of the view, the length of light assembly 12 is only slightly compressed, sufficient to squeeze "O" rings ~~[[44]]~~ 48 between end caps 30L and 30R and the ends of tubular light assembly housing 46, so as to create an effective seal. Protrusion 28L is shown as merely a rounded hump on the surface of end cap 30L, while protrusion 28R is shown to be a length extending member. Either is appropriate as a designer's choice for conforming the length of light assembly 12 to that of cavity 14 so that protrusions 28L and 28R fit into recesses 42L and 42R, so as to hold light assembly 12 in place. In the lower half of the view, the length of light assembly 12 is more severely compressed, sufficient to squeeze "O" rings 48 between end caps 30 and tubular housing 46 and ~~[significantly]~~ resiliently reduce the overall length of light assembly 12. In this condition, light assembly 12 is short enough to fit within the length of cavity 14 for fitting protrusions 28L and 28R into recesses 42L and 42R, where residual compressive forces will hold it in place. Alternatively, if recesses 42L & 42R were protrusions and protrusions 28L and 28R were recesses, light assembly 12 would be retained in the same manner.

FIGURE 6 shows protrusion 70, which may be used at one or both ends of alternative embodiments of the present inventions. Here, guiding extension 52 of end cap 50, is sized to fit freely within sliding protrusion 54. Coiled compression spring 56 fits inside of sliding protrusion 54 so as to urge it outwardly to an extended length position for engagement with recesses 42L and 42R. In such embodiments, "O" ring 58 fits inside of tubular light assembly body 62.

The embodiments shown and described above are exemplary. It is not claimed that all of the details, parts, elements, or steps described and shown were invented herein. Even though many characteristics and advantages of the present inventions have been described in the drawings and accompanying text, the description is illustrative only. Changes may be made in the details, especially in matters of shape, size, and arrangement of the parts within the scope and principles of the inventions.

The restrictive description and drawings of the specific examples above do not point out what an infringement of this patent would be, but are to provide at least one explanation of how to use and make the inventions. It is to be understood that the present invention is not limited to the disclosed embodiments and may be expressed

1.(currently amended) Apparatus [~~illuminating apparatus~~] for illuminating a toilet bowl, wherein a seat ring is pivotally ~~mounted~~ mountable to the toilet bowl by spaced apart, co-axial hinges, for movement between first and second angular positions, comprising:

a light assembly activated by a switch responsive to angular orientation and having a generally tubular body of a given, resiliently reducable length, with two ends; and

a toilet seat ring having a centrally located cavity at the rearmost edge, in between the spaced apart hinges, the cavity having a lateral wall and two horizontally opposed cavity end surfaces [~~end walls~~], with the distance between the cavity end surfaces [[walls]] being equal to or less than the given length, so as to hold the resiliently reduced length of the light assembly for movement between [[a]] the first seat ring angular position [~~wherein light is directed into the toilet bowl interior,~~] and [[a]] the second seat ring angular position[~~wherein the light is deactivated~~].